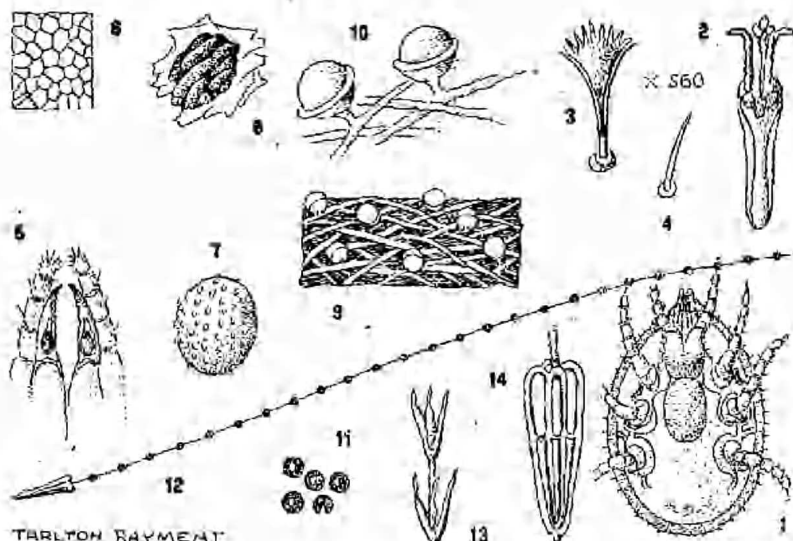


## FUNGI AND BEES

By TARBTON RAYMENT, F.R.Z.S.\*

A short but interesting paper (*Nature*, 153: 112, Jan. 1944) has just arrived (March 24, 1954) from Ronald Melville, who, it will be remembered, recently visited Australia. It is written in collaboration with H. A. Dade, of the Imperial Mycological Institute, Kew.

Describing a piece of partly decayed wood containing the remains of cells built by a leaf-cutter bee, *Megachile*, Dr. Melville says: "The pupa and pollen store were invested with a white mycelium in which small black fruiting bodies were observed. On examination the fungus proved to be *Pericystis opis* Maassen, the pathogen responsible for chalk-brood disease of the honey-bee. We are not aware of earlier records of this fungus attacking wild bees."



TARBTON RAYMENT

## EXPLANATION OF TEXT-FIGURE

1, A reddish Uropodid mite, probably a new species of *Phaulodinyclus* taken from Tertianus pupae of *Halictus peraustralis* Kkll. 2, Claw segment of leg (x 560). 3, Round the body of the mite are 38 spatulate organs with a serrated margin (x 560). 4, One of the spines of the legs; the mites have few hairs. 5, Portion of the mouth-parts more highly magnified. 6, Sculpture of the median oval structure on the ventral surface of the mite. 7, Egg of the mite found on *Halictus leai* Kkll. 8, The stercoral pellets of the larvae of *H. leai*, often in a compact mass in a cast pellicle, are consumed by the mites. 9, The pollen-mat of *H. leai* Kkll. is often covered with the mycelia of a mould. 10, Two of the "green" fruiting-bodies of the mould much enlarged. 11, The spores are in purple-coloured cases (species not determined, but perhaps *Pericystis*). 12, Mites are often congregated in a "trass" of minute nodose "hairs" of the larvae of a museum pest (viewed by low power). 13, Two of the nodes highly magnified. 14, Basal structure of the "hair".

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In December, 1947, the author investigated the biology of *Halictus leai* Kell., collected by Owen Dawson, at Cranbourne, Victoria, but his notes were not published until 1954 (*Australian Zoologist*, Pt. I, March, p. 26, 1954).

"Microscopic study of five mites on a wild-bee that had large areas of its body growing a mould producing a purplish-black sporangium, showed that many of the mites had ingested a few of the sporangia. The author was unable to determine whether or not spores form portion of the normal diet of the mites."

It would be interesting to discover whether the fungus on the Australian *Halictus* is identical with that found by Dr. Melville on the English *Megachile*. The drawing may assist some mycologist to determine the species.

## NEW LIGHT ON ANIMAL WAYS

### (Book Review)

To understand the behaviour of any animal the student should invariably walk "chock by jawl" with it; nay, more, he should live among its kind, and few behaviourists have done that so successfully as Doctor Konrad Z. Lorenz, of Altenberg, on the Austrian Danube—and not in cages, mind you! This naturalist's remarkable open air investigations have been translated from the German by Marjorie Kerr Wilson under the title of "King Solomon's Ring", and the book thoroughly deserves the high encomiums bestowed on it by our own eminent Julian Huxley. All naturalists and philosophers should read this book.

Lorenz, a true scientist, repeatedly compares the reactions of his animals with those of man, in an informative and interesting style, and presents us with many uncommon angles that we would do well to incorporate in our own researches. It is impossible, in a short review of this kind, to cover adequately the extensive field cultivated by this naturalist, for he won the friendship of jackdaws, doves, cockatoos, dogs, hamsters, wolves and many other animals; and he ornaments margins with numbers of amusing but nevertheless naively clever thumbnail sketches that a reader thoroughly enjoys.

This reviewer found the chapter on "Morals and Weapons" exceedingly thought-provoking. Lorenz stresses the fact that the weapons of a species govern very largely the behaviour with its fellows, and points out that only one, man, has been able to arm himself with horrible weapons that are not his own by natural inheritance. Consequently, man's behaviour in modern warfare does not conform with the natural inhibitions of other animals in combat. This reviewer admits, ruefully enough, that he cannot share the author's optimism in the future behaviour of mankind when once war is declared—or, perhaps, in peace.

Quotation at this juncture is unavoidable: "I think it a truly magnificent thing that one wolf finds himself unable to bite the proffered neck of another, but still more so that the other relies upon him for this amazing restraint". This reviewer has repeatedly witnessed two queen bees locked in combat, so that each could deliver a fatal sting to the adversary. But on the instant the posture of extermination is attained, both insects immediately break away without effecting the *coup de grace*. The future of the species is threatened; the race must not be exterminated.

That merciful behaviour is the common inheritance of the social animals, but not man. It is the basis of the plea for mercy by the weaker warrior—the sword is lowered in submission. That was for the ancients. To-day it is futile for the innocent and the weak ones in a city to pray for mercy; the atom bomb will inevitably fall and reduce the just and the unjust to elemental dust.

—TAKLTON RAYMENT